Docket No.: 50246-068 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent 5,598,525	:	
Issued January 28, 1997	:	
To Robert M. Nally, et al.	:	
Based on Serial No.: 376,919	:	Group Art Unit:
Filed: January 23, 1995	:	Examiner:

For: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS

COMBINED DECLARATION AND POWER OF ATTORNEY IN REISSUE APPLICATION

Box 7
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Cirrus Logic, Inc., Assignee of the entire interest in the above-identified patent, hereby declares:

The post office address of Cirrus Logic, Inc. is stated below; and that

Cirrus Logic, Inc. verily believes that inventors Robert M. Nally of Plano, Texas and John C. Schafer of Wylie, Texas are the original and first joint inventors of the invention entitled: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS, described and claimed in the U.S. Patent No. 5,598,525, filed January 23, 1995, and issued on January 28, 1997, that Cirrus Logic, Inc. understands the content of the specification filed therein, that Cirrus Logic,

Inc. has reviewed and understands the content of the specification including the claims originally patented, as well as the claims referred to in this Declaration, that Cirrus Logic, Inc. does not know and does not believe the same was ever known or used in the United States of America before the invention thereof by said inventors, or patented or described in any printed publication in any country before their invention thereof or more than one year prior to the filing date of the application which matured into U.S. Patent No. 5,598,525; that the same was not in public use or on sale in the United States of America more than one year prior to said filing date to the best of Cirrus Logic, Inc.'s knowledge, information and belief, that the invention has not been patented or made the subject of an inventor's certificate issued before said filing date, in any country foreign to the United States of America on an application filed by Cirrus Logic, Inc. or Cirrus Logic, Inc.'s legal representatives or assigns more than twelve months prior to said filing date, that Cirrus Logic, Inc. acknowledges a duty to disclose information of which Cirrus Logic, Inc. is aware which is material to the examination of this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to the original application Serial No. 376,919, filed on January 23, 1995 by us or our legal representatives or assigns, except as follows: NONE

Our original U.S. Patent 5,598,525, issued January 28, 1997, which matured from said Serial No. 376,919, is believed to be wholly or partly inoperative by reason of the patentees claiming the invention imprecisely and with aspects of the invention recited only implicitly through error and without any deceptive intention.

That Applicants claims are wholly or partly inoperative by failure to assert claims of the following language:

1. A single integrated graphics and video controller adapted for driving a display sequentially comprising:

an interface for receiving words of pixel data, each said word associated with an address buffer;

circuitry for writing each said word of said pixel data received by said interface to a one of on-screen and off-screen memory areas of a frame buffer;

circuitry for selectively retrieving, as data is provided for display, said words from said on-screen and off-screen areas;

a first pipeline for substantially continuously processing words of graphics data retrieved from said frame buffer; and

a second pipeline for processing words of video data retrieved from said frame buffer so that the video data is ready for display once a display raster scan reaches a display position of a window.

2. The controller of claim 1 and further comprising output selection circuitry for selecting for output between graphics data received from said first pipeline and data received from said second pipeline, said selection circuitry operable to:

in a first mode, pass data from said first pipeline: and

in a second mode, pass data from said second pipeline when said data corresponds to a selected display position of a display window.

3. The controller of claim 2 wherein said selection circuitry is further operable to:

in a third mode, pass data from said second pipeline when said data corresponds to said selected display position of said display window and data from said first pipeline match a color key.

4. The controller of claim 3 wherein said selection circuitry is further operable in a fourth mode to pass data from said second pipeline when data from said first pipeline match a color key.

5. The controller of claim 1 wherein said circuitry for retrieving maintains a stream of graphics data to said first pipeline and provides video data to said second pipeline when a display raster scan reaches said display position of said window.

6. The controller of claim 1 and further comprising:

a video port for receiving real-time video data; and

circuitry for generating an address to said memory at which said real-time video data is to be stored.

7. The controller of claim 1 wherein said second pipeline includes a first first-in-first-out

memory for receiving data for a first display line of pixels in memory and a second first-in-first-out memory for receiving data from a second display line of pixels memory.

8. The controller of claim 7 wherein said first display line adjacent in memory to said second display line.

9. The controller of claim 7 wherein said output selection circuitry comprises:

an output selector for selecting between data from said second pipeline and data from said first pipeline in response to a selection control signal;

a register for maintaining a plurality of overlay control bits;

window position control circuitry for selectively generating a position control signal when a word of said data stream from said second pipeline falls within a display window;

color comparison circuitry for comparing words of said data stream from said first pipeline with a color key and for providing in response a color comparison control signal; and

a control selector for selectively providing a said selection control signal in response to said overlay control bits in said register and at least one of said position control and color comparison control signals.

10. The controller of claim 9 wherein said window position control circuitry comprises:

window position counters operable to increment from initial count values corresponding to a starting pixel of a display window as data representing each pixel in a display screen is pipelined through said overlay control circuitry;

screen position counters operable to count as data representing each pixel in said display screen is pipelined through said overlay control circuitry; and

comparison circuitry operable to compare a current count in said window position counters and a current count in said screen position counters and selectively generate said position control signal in response.

11. The controller of claim 9 wherein said color comparison circuitry comprises:

a color key register for storing bits composing said color key; and

a plurality of AND-gates for comparing said words of said graphics data stream with bits of said color key.

12. The controller of claim 1 wherein said interface includes a dual-aperture port.

13. A single integrated controller comprising:

circuitry for writing selectively, on a word by word basis, each word of received data into a selected one of on-screen and off-screen memory spaces of a frame buffer;

a first port for receiving video and graphics data, a word of said data received with an address of said memory spaces directing said word to be processed as a word of video data or a word of graphics data;

a second port for receiving real-time video data;

circuitry for generating an address associated with a selected one of said memory spaces for a word of said real-time video data;

circuitry for selectively retrieving said words of data on a word by word basis from said on-screen and off-screen memory spaces as data is rastered for driving a display in a sequential fashion;

a graphics backend pipeline for processing ones of said words of data representing graphics data retrieved from said frame buffer;

a video backend pipeline, separate from said graphics backend pipeline, for processing other ones of said words of data representing video data retrieved from said frame buffer, said circuitry for retrieving always rastering a stream of data from said frame buffer to said graphics backend pipeline and rastering video data to said video backend pipeline so that the video data is ready for display once a display raster scan reaches a display position of a window; and

output selector circuitry for selecting for output between words of data output from said graphics backend pipeline and words of data output from said video backend pipeline.

14. The controller of claim 13 wherein said output selector is further operable to select between graphics data output from a color look-up table and true color data output from said graphics pipeline.

15. The controller of claim 13 wherein said output selector is operable to:

in a first mode, pass only a word of data output from said graphics pipeline;

in a second mode, pass a word of data output from said video pipeline when said display raster scan has reached a display position corresponding to a window and a word of data from said graphics pipeline when said display raster scan is in any other display position;

in a third mode, pass a word of data output from said video pipeline when said display raster scan has reached a display position corresponding to a window and a corresponding word of data from said graphics pipeline matches a color key and a word of data from said graphics pipeline when said display raster scan is in any other display position; and

in a fourth mode, pass a word of data from said video pipeline when said corresponding word of data from said graphics pipeline matches a color key and a word of data from said graphics pipeline when saidcorresponding word does not match said color key.

16. The controller of claim 13 wherein said video pipeline includes a first first-in-first-out memory for receiving a plurality of words of data for a first display line of pixels in memory and a second first-in-first-out memory for receiving a plurality of words of data for a second display line of pixels in memory.

17. The controller of claim 16 wherein said first display line is stored adjacent in memory to said second display line.

18. The controller of claim 13 wherein said output selector circuitry comprises:

a control selector having a plurality of control inputs coupled to a register, said register storing a plurality of overlay control bits;

window position control circuitry coupled to a first control input of said control selector, said window position control circuitry operable to selectively provide a first control signal to said first control input when a word of data being pipelined through said video pipeline falls within a display window;

color comparison circuitry operable to compare a word of data being pipelined through said graphics pipeline with a color key and provide in response a second control signal to a second control input of said control selector; and

wherein said control selector is operable to provide an output selection control signal in response to at least one of said first and second control signals and said overlay control bits being stored in said register.

19. The circuitry of claim 18 wherein said output selector circuitry further includes a third control input coupled to certain bits of said graphics pipeline, said output selector further operable to select between data on said respective video and graphics pipelines in response to said certain bits presented to said selector circuitry.

20. The circuitry of claim 18 wherein said window position control circuitry comprises:

a window x-position counter operable to count from a loaded x-position value in response to a video clock, said x-position counter reloading in response to display horizontal synchronization signal;

a window y-position counter operable to count from a loaded y-position value in response to said horizontal synchronization signal, said y-position counter reloading in response to a display vertical synchronization signal;

CRT position circuitry operable maintain counts corresponding to a current display pixel; and

comparison circuitry operable to compare current counts in said window counters with said current counts held in said CRT position circuitry and generate in response said first control signal.

21. The circuitry of claim 20 wherein said window position control circuitry further comprises an x-position register for holding said x-position value for loading into said x-position counter and a y-position register for holding said y-position value for loading into said y-position counter.

22. The circuitry of claim 13 wherein said color comparison circuitry comprises:

a color key register for storing a plurality of color key bits; and

a plurality of XNOR-gates each having at least one input coupled to a bit position in said color key register and at least one input coupled to said graphics data path.

23. The circuitry of claim 13 wherein said video pipeline comprises:

a first-in/first-out memory for receiving a first stream of words of data from said frame buffer;

a second first-in/first-out memory disposed in parallel with said first first-in/first-out memory for receiving a second stream of words of data from said frame buffer; and

interpolation circuitry for selectively generating an additional word of data by interpolating a word of said first stream and a word of second stream data output from said first and second first-in/first-out memories.

24. The controller of claim 13 wherein said first pore comprises a dual-aperture port.

25. A display system comprising:

a first backend pipeline for processing data;

a second backend pipeline for processing graphics data disposed in parallel to said first processing pipeline;

a multi-format frame buffer memory having on-screen and off-screen areas each operable to allow said frame buffer simultaneously store data in graphics and video formats;

a input port for receiving both graphics and video data, each word of said data associated with an address directing said word to be processed as either graphics or video data;

circuitry for writing a word of said playback data into a selected one of said areas of said multi-format memory;

memory control circuitry for controlling the transfer of data between said first backend pipeline

and said frame buffer and between said second backend pipeline and said frame buffer;

a display unit; and

overlay control circuitry for selecting for output to said display unit between data provided by said first backend pipeline and data provided by said second backend pipeline.

26. The display system of claim 25 wherein said second backend pipeline includes:

a first first-in-first-out memory for receiving first selected data;

a second first-in-first-out memory disposed in parallel to said first first-in-first-out memory for receiving second selected data;

interpolation data for generating additional data by interpolating data output from said respective first and second first-in-first-out memories.

27. The display system of claim 26 wherein said second backend pipeline further comprises color conversion circuitry for converting data received from said frame buffer in a video format to a graphics format.

28. The display system of claim 25 and further comprising a video front-end pipeline for inputting video data into a selected one of on-screen and off-screen spaces of said frame buffer comprising:

a video data port for receiving video data from a real time data source;

input control circuitry for receiving framing signals associated with said real time data and generating corresponding addresses to said selected one of said spaces in response.

29. The display system of claim 28 wherein said video front-end pipeline further comprises encoding circuitry for packing said video data prior to storage in said selected one spaces.

30. The display system of claim 28 wherein said video front-end pipeline further comprising multiplexing circuitry for selecting between video data received through said video data port and data received from said dual aperture port.

31. The display system of claim 30 wherein said video front end pipeline further comprises conversion circuitry for converting graphics data received through said dual-aperture port to a video format for storage in said selected one of said spaces.

32. The display system of claim 25 wherein said first backend pipeline processes playback video.

33. The display system of claim 25 wherein said input port comprises a dual-aperture input port.

34. A single integrated display data processing system comprising:

circuitry for writing data into an on-screen space of a frame buffer;

circuitry for writing data into an off-screen space of said frame buffer;

a video pipeline for processing data output from a selected one of said on-screen and off-screen spaces comprising:

a first first-in-first-out memory for receiving selected data from said selected space;

a second first-in-first-out memory disposed in parallel to said first first-in-first-out memory for receiving other selected data from said selected space; and

an interpolator for generating additional data by interpolating data output from said respective first and second first-in-first-out memories;

a graphics pipeline disposed in parallel to and separate from said video pipeline for processing data output from a selected one of said on-screen and off-screen spaces; and

an output selector for selecting between data output from said video pipeline and data output from said graphics pipeline.

35. The system of claim 34 and further comprising selection control circuitry for generating an output control signal for controlling said output selector comprising:

a control selector having a plurality of data inputs coupled to a register, said register for storing a plurality of overlay control bits; and

color comparison circuitry operable to compare bits of data output from said graphics pipeline with a color key and provide in response a control signal to a control input of said control selector.

36. The system of claim 34 and further comprising window position control circuitry operable to provide a second control signal to a second control input of said control selector when data from said video pipeline falls within a display window.

37. A single integrated display controller comprising:

circuitry for selectively retrieving data from an associated multi-format frame buffer, the frame buffer having separate storage locations respectively operable for allowing simultaneously storing graphics and video data in said frame buffer;

a first pipeline for processing words of graphics data selectively retrieved from said frame buffer; and

a second pipeline, separate from the first pipeline, for processing words of video data selectively

retrieved from said frame buffer.

38. The controller of claim 37 wherein said first and second pipelines are disposed in parallel and concurrently process data.

39. The controller of claim 38 and further comprising output selection circuitry for selecting for output between graphics data received from said first pipeline and video data received from said second pipeline.

40. The controller of claim 37 wherein said frame buffer is partitioned into on-screen and off-screen areas, each of said on-screen and off-screen areas operable to allow the buffer to simultaneously store both graphics and video data.

41. The controller of claim 37 wherein said circuitry for selectively retrieving is operable to retrieve a substantially constant stream of graphics data from said frame buffer and provide said stream of graphics data to said first pipeline.

42. The controller of claim 41 wherein said circuitry for selectively retrieving is operable to retrieve at least one said word of video data from said frame buffer and provide said at least one word of said video data to said second pipeline, only when said display controller is generating a video display window.

43. A display controller for interfacing a multi-format frame buffer and a display device, the multi-format frame buffer having on-screen and off-screen areas each operable for allowing simultaneously storing both graphics and video pixel data in the frame buffer, said display controller comprising:

circuitry for selectively retrieving pixel data from a selected one of said on-screen and off-screen areas of said frame buffer;

a graphics backend pipeline for processing graphics data retrieved from said selected one of said areas of said frame buffer;

a video backend pipeline for processing video data retrieved from said selected one of said areas of said frame buffer; and

an output selector for selectively passing to said display device data received from said graphics or video backend pipelines.

44. The display controller of claim 43 wherein said circuitry for selectively retrieving is operable to retrieve at least one said word of video data from said frame buffer and provide said at least one said word of video data no said second pipeline only when said display controller is generating a video display window.

45. The display controller of claim 43 wherein said output selector is operable to:

in a first modes pass data from said graphics pipeline; and

in a second modes pass data from said video pipeline when a display position corresponding to a video display window has been reached.

46. The display window of claim 43 wherein said output selector is operable to:

in a first mode, pass data from said graphics pipeline; and

in a second mode, pass data from said video pipeline when a display position corresponding to a video display window has been reached and data from said graphics pipeline match a color key.

47. The display controller of claim 43 wherein said output selector is operable to:

in a first mode, pass data from said graphics pipeline; and

in a second mode, pass data from said video pipeline when data from said graphics pipeline matches a color key.

48. The controller of claim 42 in which graphics data is substantially continuously retrieved for a display while video data is retrieved only for the video display window.

That the failure to assert claims of this nature occurred without deceptive intention because Assignee, through arguments by opposing counsel in litigation and through an Initial Decision of an Administrative Law Judge at the Federal Trade Commission, became aware that the original patented claims could be misconstrued as indefinite or misconstrued to read on prior art.

We hereby revoke all prior powers of attorney and appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

David L. Stewart, Reg. No. 37,578; Gene Z. Rubinson, Reg. No. 33,351; Eugene J. Molinelli, Reg. No. 42,901 of McDermott, Will & Emery; and

J.P. Violette, Reg. No. 33,042; Steven A. Shaw, Reg. No. 39,368; Dan A. Shifrin, Reg. No. 34,473 of Cirrus Logic, Inc.

All future correspondence connected therewith should be addressed to the following address:

David L. Stewart, Esq.
McDermott, Will & Emery
600 13th Street, N. W.
Washington, DC 20005-3096

The undersigned hereby declare that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

CIRRUS LOGIC, INC.

By: _____

Company Officer's Title: _____

Date: _____

CERTIFICATE UNDER 37 CFR §3.73(b)

Applicant: Robert M. Nally, et al.
Application No.: 376,919 Filed: January 23, 1995
For: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS
Cirrus Logic, Inc. a Corporation
(Name of Assignee) (Type of Assignee)

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of :

A. ☒ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel 7326, Frame 0692. That assignment is subject to a security interest in favor of the Bank of America National Trust and Savings as agent, dated August 29, 1996 and recorded at Reel 8113, Frame 0001.

OR

B. ☐ A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: dls To:
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.

2. From: To:
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.

3. From: To:
The document was recorded in the Patent and Trademark Office at Reel , Frame , or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ Copies of assignments or other documents in the chain of title are attached.

The undersigned has caused a review to be made of all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the name of the assignee identified above.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: _____

Name: _____

Title: _____

Signature _____

Docket No.: 50246-068 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent 5,598,525	:	
Issued January 28, 1997	:	
To Robert M. Nally, et al.	:	
Based on Serial No.: 376,919	:	Group Art Unit:
Filed: January 23, 1995	:	Examiner:

For: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS

ASSIGNEE'S CONSENT TO REISSUE

Box 7
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

In accordance with the provisions of 37 CFR 1.172, Cirrus Logic, Inc. Assignee of the entire interest of U.S. Patent 5,598,525 to Robert M. Nally et al., by virtue of an Assignment from the inventors to Cirrus Logic, Inc. dated January 23, 1995 and recorded at Reel 7326, Frame 0692, subject to a Security Agreement dated August 29, 1996 in favor of Bank of America National Trust and Savings as agent, recorded at Reel 8113, Frame 0001, does hereby consent to the filing of the accompanying Reissue Application.

In witness whereof the undersigned hereby sets his hand and seal.

Signature: _____

CIRRUS LOGIC, INC.

By: _____

Title: _____

Date: _____

Docket No.: 50246-068 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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OFFER TO SURRENDER LETTERS PATENT

Box 7
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

In accordance with the provisions of 37 CFR 1.178, the undersigned Assignee of the accompanying reissue application for the reissue of U.S. Letters Patent Number 5,598,525 for APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS granted on January

28, 1997, to Robert M. Nally, John C. Schafer and assigned to Cirrus Logic, Inc. of Fremont, California, by assignment of the entire interest, hereby offers to surrender said Letters Patent.

CIRRUS LOGIC, INC.

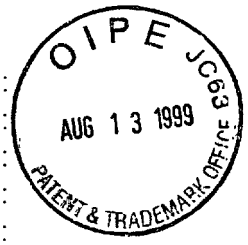
By: _____

Title: _____

Date: _____

Docket No.: 50246-068 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Reissue of U.S. Patent 5,598,525

Issued to Robert M. NALLY, et al.

Issue Date: January 28, 1997

Based on Serial No.: 376,919 : Group Art Unit: None

Filed: January 23, 1995 : Examiner: None

For: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS

Honorable Commissioner of
Patents and Trademarks
Washington, D. C. 20231

LETTER REGARDING REISSUE APPLICATION

Sir:

A Reissue Application based on U.S. Patent 5,598,525 to Nally et al. accompanies this letter.

Litigation in two cases is relevant to this reissue application. They are:

IN THE MATTER OF CERTAIN VIDEO GRAPHICS DISPLAY CONTROLLERS AND PRODUCTS CONTAINING SAME, United States International Trade Commission Investigation No. 337-TA-412, and

CIRRUS LOGIC, INC., VS. ATI TECHNOLOGIES, INC., United States District Court for the Northern District of California, San Francisco Division, Docket No. C-98-2700SI.

The ITC litigation has concluded with an INITIAL DETERMINATION and a subsequent NOTICE OF COMMISSION DETERMINATION NOT TO REVIEW THE BULK OF AN INITIAL DETERMINATION FINDING NO VIOLATION OF §337 OF THE TARIFF ACT OF

1930. A copy of the initial determination and the commission determination are attached hereto as Exhibits 7 and 8 to the reissue application. In addition, certain pleadings in each of these actions are included for consideration as Exhibits 4, 5 and 6.

This reissue application is undertaken to make explicit what was previously implicit in a proper construction of the claim language. Furthermore, certain erroneous claim construction findings by the Administrative Law Judge of the ITC are clear in the attached Initial Determination. For example, the limitation "a first port" found in claim 13 does not suggest or imply any decoding of addresses.

The two year time period for submitting broadened claims has past, and it is believed that no broadening of any aspect of the claims is involved in this reissue application.

Applicant respectfully requests examination of the reissue application at this regardless of the pending litigation.

A Request for Reexamination is filed concurrently herewith. Applicant respectfully requests merger of this reissue application with the Reexamination, should a determination be made that a substantial new question to patentability exists. See MPEP 1442.02, last paragraph.

Please note that the documents provided from the International Trade Commission action include only the public versions of the documents, certain information having been redacted in accordance with normal ITC practice. The undersigned was not privy to the ITC action and does not have access to the unredacted versions.

The following documents are included as part of this submission:

1. A Reissue Application incuding a single column cut and paste version of specification of the patent sought to be reissued including changes made to the specification by two certificates of correction prior to this filing. Also, a cut and paste version of the claims and copies of the original drawings are included.

2. Certificate under 37 C.F.R. 3.73(b)--unsigned (Exhibit 1 to the Reissue Application).

3. Assignee's Consent to Reissue--unsigned (Exhibit 2).

4. Offer to Surrender Letters Patent--unsigned (Exhibit 3).

5. Complaint for Patent Infringement in Cirrus Logic, Inc. vs. ATI Technologies, Inc. from the United States District Court, Northern District of California, San Francisco, Docket No. C-98-2700SI (Exhibit 4).

6. Complaint under Section 337 of the Tariff Act of 1930 as amended (Exhibit 5).

7. First amended complaint under Section 337 of the Tariff Act of 1930, as amended (Exhibit 6).

8. Public version of the initial determination in the United States International Trade Commission investigation No. 337-TA-412, in the matter of certain video graphics display controllers and products containing same (Exhibit 7).

9. Notice of Commission Determination not to review the bulk of an initial determination finding no violation of Section 337 of the Tariff Act of 1930 (Exhibit 8).

10. Citation of Documents under 37 C.F.R. 1.555 together with 21 documents for consideration by the Patent and Trademark Office.

Applicant respectfully requests that any unsigned document be provisionally accepted under 35 U.S.C. 26 pending submission of a signed document.

Accordingly, Applicant respectfully requests that the U.S. Patent & Trademark Office reissue U.S. Patent No. 5,598,525.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

David L. Stewart
Registration No. 37,578

600 13th Street, N.W.
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(202) 756-8601 DLS:DLS
Date: August 13, 1999
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Docket No.: 50246-068

PATENT

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COMBINED DECLARATION AND POWER OF ATTORNEY IN REISSUE APPLICATION

Box 7
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Cirrus Logic, Inc., Assignee of the entire interest in the above-identified patent, hereby declares:

The post office address of Cirrus Logic, Inc. is stated below; and that

Cirrus Logic, Inc. verily believes that inventors Robert M. Nally of Plano, Texas and John C. Schafer of Wylie, Texas are the original and first joint inventors of the invention entitled: APPARATUS, SYSTEMS AND METHODS FOR CONTROLLING GRAPHICS AND VIDEO DATA IN MULTIMEDIA DATA PROCESSING AND DISPLAY SYSTEMS, described and claimed in the U.S. Patent No. 5,598,525, filed January 23, 1995, and issued on January 28, 1997, that Cirrus Logic, Inc. understands the content of the specification filed therein, that Cirrus Logic,

Inc. has reviewed and understands the content of the specification including the claims originally patented, as well as the claims referred to in this Declaration, that Cirrus Logic, Inc. does not know and does not believe the same was ever known or used in the United States of America before the invention thereof by said inventors, or patented or described in any printed publication in any country before their invention thereof or more than one year prior to the filing date of the application which matured into U.S. Patent No. 5,598,525; that the same was not in public use or on sale in the United States of America more than one year prior to said filing date to the best of Cirrus Logic, Inc.'s knowledge, information and belief, that the invention has not been patented or made the subject of an inventor's certificate issued before said filing date, in any country foreign to the United States of America on an application filed by Cirrus Logic, Inc. or Cirrus Logic, Inc.'s legal representatives or assigns more than twelve months prior to said filing date, that Cirrus Logic, Inc. acknowledges a duty to disclose information of which Cirrus Logic, Inc. is aware which is material to the examination of this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to the original application Serial No. 376,919, filed on January 23, 1995 by us or our legal representatives or assigns, except as follows: NONE

Our original U.S. Patent 5,598,525, issued January 28, 1997, which matured from said Serial No. 376,919, is believed to be wholly or partly inoperative by reason of the patentees claiming the invention imprecisely and with aspects of the invention recited only implicitly through error and without any deceptive intention.

That Applicants claims are wholly or partly inoperative by failure to assert claims of the following language:

1. A single integrated graphics and video controller adapted for driving a display sequentially comprising:

an interface for receiving words of pixel data, each said word associated with an address buffer;

circuitry for writing each said word of said pixel data received by said interface to a one of on-screen and off-screen memory areas of a frame buffer;

circuitry for selectively retrieving, as data is provided for display, said words from said on-screen and off-screen areas;

a first pipeline for substantially continuously processing words of graphics data retrieved from said frame buffer; and

a second pipeline for processing words of video data retrieved from said frame buffer so that the video data is ready for display once a display raster scan reaches a display position of a window.

2. The controller of claim 1 and further comprising output selection circuitry for selecting for output between graphics data received from said first pipeline and data received from said second pipeline, said selection circuitry operable to:

in a first mode, pass data from said first pipeline: and

in a second mode, pass data from said second pipeline when said data corresponds to a selected display position of a display window.

3. The controller of claim 2 wherein said selection circuitry is further operable to:

in a third mode, pass data from said second pipeline when said data corresponds to said selected display position of said display window and data from said first pipeline match a color key.

4. The controller of claim 3 wherein said selection circuitry is further operable in a fourth mode to pass data from said second pipeline when data from said first pipeline match a color key.

5. The controller of claim 1 wherein said circuitry for retrieving maintains a stream of graphics data to said first pipeline and provides video data to said second pipeline when a display raster scan reaches said display position of said window.

6. The controller of claim 1 and further comprising:

a video port for receiving real-time video data; and

circuitry for generating an address to said memory at which said real-time video data is to be stored.

7. The controller of claim 1 wherein said second pipeline includes a first first-in-first-out

memory for receiving data for a first display line of pixels in memory and a second first-in-first-out memory for receiving data from a second display line of pixels memory.

8. The controller of claim 7 wherein said first display line adjacent in memory to said second display line.

9. The controller of claim 7 wherein said output selection circuitry comprises:

an output selector for selecting between data from said second pipeline and data from said first pipeline in response to a selection control signal;

a register for maintaining a plurality of overlay control bits;

window position control circuitry for selectively generating a position control signal when a word of said data stream from said second pipeline falls within a display window;

color comparison circuitry for comparing words of said data stream from said first pipeline with a color key and for providing in response a color comparison control signal; and

a control selector for selectively providing a said selection control signal in response to said overlay control bits in said register and at least one of said position control and color comparison control signals.

10. The controller of claim 9 wherein said window position control circuitry comprises:

window position counters operable to increment from initial count values corresponding to a starting pixel of a display window as data representing each pixel in a display screen is pipelined through said overlay control circuitry;

screen position counters operable to count as data representing each pixel in said display screen is pipelined through said overlay control circuitry; and

comparison circuitry operable to compare a current count in said window position counters and a current count in said screen position counters and selectively generate said position control signal in response.

11. The controller of claim 9 wherein said color comparison circuitry comprises:

a color key register for storing bits composing said color key; and

a plurality of AND-gates for comparing said words of said graphics data stream with bits of said color key.

12. The controller of claim 1 wherein said interface includes a dual-aperture port.

13. A single integrated controller comprising:

circuitry for writing selectively, on a word by word basis, each word of received data into a selected one of on-screen and off-screen memory spaces of a frame buffer;

a first port for receiving video and graphics data, a word of said data received with an address of said memory spaces directing said word to be processed as a word of video data or a word of graphics data;

a second port for receiving real-time video data;

circuitry for generating an address associated with a selected one of said memory spaces for a word of said real-time video data;

circuitry for selectively retrieving said words of data on a word by word basis from said on-screen and off-screen memory spaces as data is rastered for driving a display in a sequential fashion;

a graphics backend pipeline for processing ones of said words of data representing graphics data retrieved from said frame buffer;

a video backend pipeline, separate from said graphics backend pipeline, for processing other ones of said words of data representing video data retrieved from said frame buffer, said circuitry for retrieving always rastering a stream of data from said frame buffer to said graphics backend pipeline and rastering video data to said video backend pipeline so that the video data is ready for display once a display raster scan reaches a display position of a window; and

output selector circuitry for selecting for output between words of data output from said graphics backend pipeline and words of data output from said video backend pipeline.

14. The controller of claim 13 wherein said output selector is further operable to select between graphics data output from a color look-up table and true color data output from said graphics pipeline.

15. The controller of claim 13 wherein said output selector is operable to:

in a first mode, pass only a word of data output from said graphics pipeline;

in a second mode, pass a word of data output from said video pipeline when said display raster scan has reached a display position corresponding to a window and a word of data from said graphics pipeline when said display raster scan is in any other display position;

in a third mode, pass a word of data output from said video pipeline when said display raster scan has reached a display position corresponding to a window and a corresponding word of data from said graphics pipeline matches a color key and a word of data from said graphics pipeline when said display raster scan is in any other display position; and

in a fourth mode, pass a word of data from said video pipeline when said corresponding word of data from said graphics pipeline matches a color key and a word of data from said graphics pipeline when saidcorresponding word does not match said color key.

16. The controller of claim 13 wherein said video pipeline includes a first first-in-first-out memory for receiving a plurality of words of data for a first display line of pixels in memory and a second first-in-first-out memory for receiving a plurality of words of data for a second display line of pixels in memory.

17. The controller of claim 16 wherein said first display line is stored adjacent in memory to said second display line.

18. The controller of claim 13 wherein said output selector circuitry comprises:

a control selector having a plurality of control inputs coupled to a register, said register storing a plurality of overlay control bits;

window position control circuitry coupled to a first control input of said control selector, said window position control circuitry operable to selectively provide a first control signal to said first control input when a word of data being pipelined through said video pipeline falls within a display window;

color comparison circuitry operable to compare a word of data being pipelined through said graphics pipeline with a color key and provide in response a second control signal to a second control input of said control selector; and

wherein said control selector is operable to provide an output selection control signal in response to at least one of said first and second control signals and said overlay control bits being stored in said register.

19. The circuitry of claim 18 wherein said output selector circuitry further includes a third control input coupled to certain bits of said graphics pipeline, said output selector further operable to select between data on said respective video and graphics pipelines in response to said certain bits presented to said selector circuitry.

20. The circuitry of claim 18 wherein said window position control circuitry comprises:

a window x-position counter operable to count from a loaded x-position value in response to a video clock, said x-position counter reloading in response to display horizontal synchronization signal;

a window y-position counter operable to count from a loaded y-position value in response to said horizontal synchronization signal, said y-position counter reloading in response to a display vertical synchronization signal;

CRT position circuitry operable maintain counts corresponding to a current display pixel; and

comparison circuitry operable to compare current counts in said window counters with said current counts held in said CRT position circuitry and generate in response said first control signal.

21. The circuitry of claim 20 wherein said window position control circuitry further comprises an x-position register for holding said x-position value for loading into said x-position counter and a y-position register for holding said y-position value for loading into said y-position counter.

22. The circuitry of claim 13 wherein said color comparison circuitry comprises:

a color key register for storing a plurality of color key bits; and

a plurality of XNOR-gates each having at least one input coupled to a bit position in said color key register and at least one input coupled to said graphics data path.

23. The circuitry of claim 13 wherein said video pipeline comprises:

a first-in/first-out memory for receiving a first stream of words of data from said frame buffer;

a second first-in/first-out memory disposed in parallel with said first first-in/first-out memory for receiving a second stream of words of data from said frame buffer; and

interpolation circuitry for selectively generating an additional word of data by interpolating a word of said first stream and a word of second stream data output from said first and second first-in/first-out memories.

24. The controller of claim 13 wherein said first pore comprises a dual-aperture port.

25. A display system comprising:

a first backend pipeline for processing data;

a second backend pipeline for processing graphics data disposed in parallel to said first processing pipeline;

a multi-format frame buffer memory having on-screen and off-screen areas each operable to allow said frame buffer simultaneously store data in graphics and video formats;

a input port for receiving both graphics and video data, each word of said data associated with an address directing said word to be processed as either graphics or video data;

circuitry for writing a word of said playback data into a selected one of said areas of said multi-format memory;

memory control circuitry for controlling the transfer of data between said first backend pipeline

and said frame buffer and between said second backend pipeline and said frame buffer;

a display unit; and

overlay control circuitry for selecting for output to said display unit between data provided by said first backend pipeline and data provided by said second backend pipeline.

26. The display system of claim 25 wherein said second backend pipeline includes:

a first first-in-first-out memory for receiving first selected data;

a second first-in-first-out memory disposed in parallel to said first first-in-first-out memory for receiving second selected data;

interpolation data for generating additional data by interpolating data output from said respective first and second first-in-first-out memories.

27. The display system of claim 26 wherein said second backend pipeline further comprises color conversion circuitry for converting data received from said frame buffer in a video format to a graphics format.

28. The display system of claim 25 and further comprising a video front-end pipeline for inputting video data into a selected one of on-screen and off-screen spaces of said frame buffer comprising:

a video data port for receiving video data from a real time data source;

input control circuitry for receiving framing signals associated with said real time data and generating corresponding addresses to said selected one of said spaces in response.

29. The display system of claim 28 wherein said video front-end pipeline further comprises encoding circuitry for packing said video data prior to storage in said selected one spaces.

30. The display system of claim 28 wherein said video front-end pipeline further comprising multiplexing circuitry for selecting between video data received through said video data port and data received from said dual aperture port.

31. The display system of claim 30 wherein said video front end pipeline further comprises conversion circuitry for converting graphics data received through said dual-aperture port to a video format for storage in said selected one of said spaces.

32. The display system of claim 25 wherein said first backend pipeline processes playback video.

33. The display system of claim 25 wherein said input port comprises a dual-aperture input port.

34. A single integrated display data processing system comprising:

circuitry for writing data into an on-screen space of a frame buffer;

circuitry for writing data into an off-screen space of said frame buffer;

a video pipeline for processing data output from a selected one of said on-screen and off-screen spaces comprising:

a first first-in-first-out memory for receiving selected data from said selected space;

a second first-in-first-out memory disposed in parallel to said first first-in-first-out memory for receiving other selected data from said selected space; and

an interpolator for generating additional data by interpolating data output from said respective first and second first-in-first-out memories;

a graphics pipeline disposed in parallel to and separate from said video pipeline for processing data output from a selected one of said on-screen and off-screen spaces; and

an output selector for selecting between data output from said video pipeline and data output from said graphics pipeline.

35. The system of claim 34 and further comprising selection control circuitry for generating an output control signal for controlling said output selector comprising:

a control selector having a plurality of data inputs coupled to a register, said register for storing a plurality of overlay control bits; and

color comparison circuitry operable to compare bits of data output from said graphics pipeline with a color key and provide in response a control signal to a control input of said control selector.

36. The system of claim 34 and further comprising window position control circuitry operable to provide a second control signal to a second control input of said control selector when data from said video pipeline falls within a display window.

37. A single integrated display controller comprising:

circuitry for selectively retrieving data from an associated multi-format frame buffer, the frame buffer having separate storage locations respectively operable for allowing simultaneously storing graphics and video data in said frame buffer;

a first pipeline for processing words of graphics data selectively retrieved from said frame buffer; and

a second pipeline, separate from the first pipeline, for processing words of video data selectively

retrieved from said frame buffer.

38. The controller of claim 37 wherein said first and second pipelines are disposed in parallel and concurrently process data.

39. The controller of claim 38 and further comprising output selection circuitry for selecting for output between graphics data received from said first pipeline and video data received from said second pipeline.

40. The controller of claim 37 wherein said frame buffer is partitioned into on-screen and off-screen areas, each of said on-screen and off-screen areas operable to allow the buffer to simultaneously store both graphics and video data.

41. The controller of claim 37 wherein said circuitry for selectively retrieving is operable to retrieve a substantially constant stream of graphics data from said frame buffer and provide said stream of graphics data to said first pipeline.

42. The controller of claim 41 wherein said circuitry for selectively retrieving is operable to retrieve at least one said word of video data from said frame buffer and provide said at least one word of said video data to said second pipeline, only when said display controller is generating a video display window.

43. A display controller for interfacing a multi-format frame buffer and a display device, the multi-format frame buffer having on-screen and off-screen areas each operable for allowing simultaneously storing both graphics and video pixel data in the frame buffer, said display controller comprising:

circuitry for selectively retrieving pixel data from a selected one of said on-screen and off-screen areas of said frame buffer;

a graphics backend pipeline for processing graphics data retrieved from said selected one of said areas of said frame buffer;

a video backend pipeline for processing video data retrieved from said selected one of said areas of said frame buffer; and

an output selector for selectively passing to said display device data received from said graphics or video backend pipelines.

44. The display controller of claim 43 wherein said circuitry for selectively retrieving is operable to retrieve at least one said word of video data from said frame buffer and provide said at least one said word of video data no said second pipeline only when said display controller is generating a video display window.

45. The display controller of claim 43 wherein said output selector is operable to:

in a first modes pass data from said graphics pipeline; and

in a second modes pass data from said video pipeline when a display position corresponding to a video display window has been reached.

46. The display window of claim 43 wherein said output selector is operable to:

in a first mode, pass data from said graphics pipeline; and

in a second mode, pass data from said video pipeline when a display position corresponding to a video display window has been reached and data from said graphics pipeline match a color key.

47. The display controller of claim 43 wherein said output selector is operable to:

in a first mode, pass data from said graphics pipeline; and

in a second mode, pass data from said video pipeline when data from said graphics pipeline matches a color key.

48. The controller of claim 42 in which graphics data is substantially continuously retrieved for a display while video data is retrieved only for the video display window.

That the failure to assert claims of this nature occurred without deceptive intention because Assignee, through arguments by opposing counsel in litigation and through an Initial Decision of an Administrative Law Judge at the Federal Trade Commission, became aware that the original patented claims could be misconstrued as indefinite or misconstrued to read on prior art.

We hereby revoke all prior powers of attorney and appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

David L. Stewart, Reg. No. 37,578; Gene Z. Rubinson, Reg. No. 33,351; Eugene J. Molinelli, Reg. No. 42,901 of McDermott, Will & Emery; and

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The undersigned hereby declare that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

CIRRUS LOGIC, INC.

By: _____
Glenn C. Jones
Company Officer's Title: Vice President, Chief Financial Officer, Treasurer & Secretary
Date: 9/2/99